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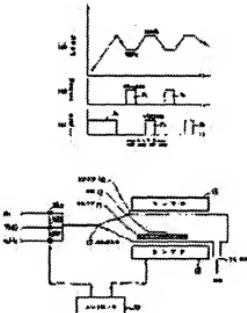
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(54) ATOMIC LAYER EPITAXIAL GROWTH

(57)Abstract:

PURPOSE: To realize epitaxial growth with economical atomic weight at high speed and at high throughput by a method wherein a substrate temperature is changed in synchronization with the timing of the supply of a raw material, a gas having a low decomposition temperature is lowered and a gas having a high decomposition temperature is supplied when the substrate temperature is raised.

CONSTITUTION: First, a controller 17 instructs lamp furnaces 15 to execute a heating operation; a temperature of a substrate 12 is raised up to 600°C. During this process, the controller 17 supplies valves 16a and 16c with a pulse P1; these are opened. By this setup, H₂ gas and AsH₃ gas with a high decomposition temperature are supplied to the inside of a reactor 10 via a gas introduction port 13. These gases are supplied in order to protect a substrate 12. Then, after an evacuation the controller 17 stops the heating operation of the lamp furnaces 15 and sets the temperature of the substrate to 400°C. The controller 17 monitors the temperature of the substrate 12 by using a temperature detector such as a thermocouple or the like; when the temperature of the substrate 12 reaches 400°C, a pulse P2 is given to valves 16a and 16b; H₂ gas and TMG having a low decomposition temperature are supplied to the inside of the reactor 10.



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